

CLOSED-LOOP MULTIMODE MIXED-DOMAIN LINEAR PREDICTION SPEECH CODER

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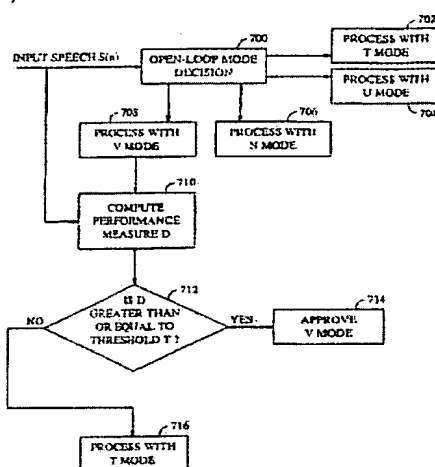
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A closed-loop, multimode, mixed-domain linear prediction (MDLP) speech coder includes a high-rate, time-domain coding mode, a low-rate, frequency-domain coding mode, and a closed-loop mode-selection mechanism for selecting a coding mode for the coder based upon the speech content of frames input to the coder. Transition speech (i.e., from unvoiced speech to voiced speech, or vice versa) frames are encoded with the high-rate, time-domain coding mode, which may be a CELP coding mode. Voiced speech frames are encoded with the low-rate, frequency-domain coding mode, which may be a harmonic coding mode. Phase parameters are not encoded by the frequency-domain coding mode, and are instead modeled in accordance with, e.g., a quadratic phase model. For each speech frame encoded with the frequency-domain coding mode, the initial phase value is taken to be the initial phase value of the immediately preceding speech frame encoded with the frequency-domain coding mode. If the immediately preceding speech frame was encoded with the time-domain coding mode, the initial phase value of the current speech frame is computed from the decoded speech frame information of the immediately preceding, time-domain-encoded speech frame. Each speech frame encoded with the frequency-domain coding mode may be compared with the corresponding input speech frame to obtain a performance measure. If the performance measure falls below a predefined threshold value, the input speech frame is encoded with the time-domain coding mode.



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